

REMARKS

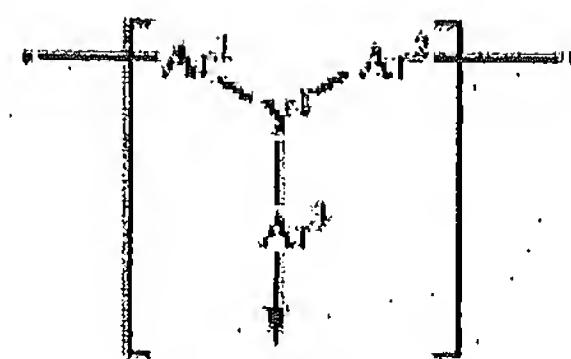
The applicant respectfully requests reconsideration in view of the amendment and the following remarks. The applicant has incorporated claims 28 and 30 into claim 24. Support for newly added claim 48 can be found in claim 30. Support for newly added claim 49 can be found in the specification at page 10, line 20. Support for newly added claim 50 can be found in claim 24. Claim 50 further limits claim 24 by requiring a polymer and not an oligomer. No new matter has been added.

The applicant has cancelled claims 28-30, 36-40 and 47. The applicant has cancelled nine claims and added three claims. The applicant believes that the amendment does not raise any new consideration or require a new search. The features from claims 28 and 30 have already been searched. The applicant has cancelled the withdrawn monomer claims. The applicant respectfully requests that the remaining withdrawn claims be rejoined upon allowance of this application.

Claims 24-30, 41-44, and 47 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 99/32537 (Allen), the English equivalent to U.S. Patent No. 6,630,566, is maintained as set forth in the previous Office Action mailed 08/07/2009. The applicant respectfully traverses this rejection.

The Examiner stated at the bottom of page 4 to page 5 of the August 7, 2009 Office Action:

Allen discloses a polymeric material comprising of at least one repeating unit, or each of more than one repeating unit consisting of Formula (1) wherein Y' may be N, P, S, As and/or Se and Ar', Ar² and Ar³ may be aromatic groups (Abstract; Col. 12, lines 27-63) selected from phenylene and naphthyl (Col. 16, lines 35-43).



Formula 1

In other words, the polymeric material of Allen may contain at least one repeating unit of Formula (1) wherein Y¹ is a phosphorous (P) atom and at least one repeating unit of Formula (1) wherein Y¹ is a nitrogen (N) atom with each Ar¹, Ar², and Ar³ selected from phenylene group. One of the repeating unit of Allen, when Y¹ is a phosphorous atom, is readable on the first repeat unit of the claimed formula (I) wherein E is a phosphorous atom with each Ar¹ and Ar³ is a phenylene, and n is zero. When Y¹ the other repeating unit of Allen is a nitrogen atom, it is readable on the second repeat unit of the claimed formula (I) wherein the unit is different from the first unit with E substituted with a nitrogen atom and each Ar¹ and Ar³ is phenylene, and n is zero. The polymeric material of Allen is readable the claimed polymer as recited in Claims 24-30 and 47 when the polymeric material of Allen contains more than one repeating unit with one unit containing a phosphorous atom and the other repeating unit containing a nitrogen atom. Allen further discloses the said polymeric material may be used in optical devices such as electroluminescent device and switching devices such as transistors as recited in Claims 41-44 (Col. 14, lines 6-44).

The applicant respectfully disagrees with the Examiner's statements. First of all, Allen disclosure in the abstract and col. 12, lines 27-63 is very broad and encompasses almost an endless amount of possibilities. Allen does not provide any specific examples of compounds of the above-identified Formula 1, where Y¹ is a phosphorous atom, let alone having the second repeat unit being different and having a phosphorous atom. In fact, Allen states at col. 12, line 41-42

"Y¹ represents, independently if in different repeat unit, N, P, [S], As and/or Se **preferably N:**" (emphasis added)

Clearly Allen believes that N is the preferable Y¹ and not P. Not only is the value of

phosphorous only one of five possible values for Y' in Allen's generic disclosure, but also not one of the thirty-two examples disclosed in column 34 through column 66 of Allen includes a phosphorus atom as the value of Y'. Examples 1-32 all have N as Y¹. Clearly the claims cannot be anticipated!

Additionally, Allen provides no reason or motivation to select phosphorous over any other of five possible values for Y¹ especially, when Allen actually teaches that it is preferable to select N as Y¹. In contrast, independent Claim 24 requires that at least one E in Formula (I) be a phosphorus atom. Accordingly, the materials defined by pending Claim 24 are a selection invention with respect to the generic disclosure of Allen.

Furthermore, the material claimed in the Claims 24 requires an oligomer or polymer rather than a single repeat unit. Therefore, in order to arrive at the oligomer or polymer defined by instant Claim 24, more than one selection of the value of Y' needs to be made. The applicant's Claim 24 requires that the second repeat unit is different from the first repeat unit and wherein the second repeat unit and optionally further repeat units are selected from optionally substituted phenyl, fluorene, spirobifluorene, indenofluorene, heteroaryl, dihydrophenanthrene and / or triarylamine. It recognized that Allen discloses that a triarylamine can be a repeat unit, however, Allen does not teach the applicant's claimed specific combination of the applicant's claimed first and second repeat units.

"[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007) quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Furthermore, the Examiner cannot selectively pick and choose from the disclosed parameters without proper motivation as

to a particular selection. The mere fact that a reference may be modified to reflect features of the claimed invention does not make the modification, and hence the claimed invention, obvious unless the prior art suggested the desirability of such modification. *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430 (Fed. Cir. 1990); *In re Fritch*, 23 USPQ2d 1780 (Fed. Cir. 1992). Thus, it is impermissible to simply engage in a hindsight reconstruction of the claimed invention where the reference itself provides no teaching as to why the applicant's combination would have been obvious. *In re Gorman*, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991).

The Examiner has not supplied the proper reasoning to modify Allen to arrive at the applicants' claimed invention.

Moreover, selecting phosphorous as an atom at a position E in Formula (I) of the instant application provides unexpected and numerous advantages over polymers that only include a nitrogen, as employed in all of the examples of Allen. Specifically, as stated on page 14, lines 3-15 of the English translation of the instant application:

The present inventors have identified numerous advantages of the polymers according to the invention as compared to prior art amine-containing polymers, as follows:

The polymers according to the invention have a significantly larger HOMO-LUMO bandgap (E_g) than comparative polymer not containing repeating units according to formula (I) (compare Table 1 below).

Furthermore, the polymers according to the invention have bluer 1931 PAL CIE co-ordinates for both photoluminescence (PL) and electroluminescence (EL) (compare Table 2 below).

In addition, the present inventors have found that a small red peak is observed in the electroluminescent spectrum of several amine-containing polymers. In contrast, this peak is absent in the electroluminescent spectra of polymers according to the invention.

Other advantages of the phosphines according to the invention over prior

art amines are higher external quantum efficiency and current ca. 2.5 times higher for polymers according to the invention.

For the above reasons, this rejection should be withdrawn.

Claim 48

Claim 48 is further removed from Allen since it requires that wherein the second repeat unit and optionally further repeat units are selected from optionally substituted phenyl, fluorene, spirobifluorene, indenofluorene, heteroaryl, or dihydronaphthalene. The applicant does not believe that Allen teaches these groups.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 14113-00179-US from which the undersigned is authorized to draw.

Dated: March 6, 2010

Respectfully submitted,

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